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ABSTRACT

This paper advances a point of view concerning the differences between basic and applied research in adult education, indicates some of the problems of conducting applied research studies, describes briefly an actual study which seems to exemplify certain problems and exigencies of applied research, and finally points up implications for the role of the adult education researcher and for graduate level research training. (A 16-item bibliography is included.) (Author)

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Approaches to Upgrading Applied Research in Adult Education*

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Introduction

The aim of this paper is to stimulate discussion among colleagues about the nature of research in adult education and, specifically, about how research can contribute more directly to the improvement of professional practice. Our contention is that while much research in adult education, and in education in general, is ostensibly concerned with the improvement of practice, it is less effective than it might be in addressing the legitimate concerns of policy makers and practitioners. There are many reasons for this situation, but part of the problem seems to stem from the influence of basic research on the conduct of applied studies and the resultant poverty of our paradigms and techniques for policy and practice oriented inquiry. The problem is compounded by the fact that much basic research has been characterized by narrow scientism. What we mean by scientism is aptly put in the standard dictionary definition: "The proposition that the methods of the natural sciences should be used in all areas of investigation."

In this paper we will advance a point of view concerning the differences between basic and applied research in adult education, indicate

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some of the problems of conducting applied research studies, describe briefly an actual study which seems to us to exemplify certain problems and exigencies of applied research, and finally point up implications for the role of the adult education researcher and for graduate level research training.

The Nature of Basic and Applied Research

To begin with, we agree with Carroll (2:109) that it is "possible and useful to distinguish between basic and applied research," although any such distinction is necessarily rough and not always easy to apply in particular cases.* To paraphrase Sellitz, et al. (11:4) and Carroll (2:109), basic educational research is disciplined inquiry expressly for the purpose of advancing knowledge and understanding of educational phenomena. Thus basic research need not have any utilitarian objective. Applied educational research, on the other hand, has as its goal the solution of practical problems related to educational policy and practice. Applied research is avowedly utilitarian. Of course, the results of basic research sometimes have implications for practice, and applied studies occasionally contribute to knowledge, but the distinction in terms of general purposes nevertheless seems valid. To be more concrete, most of the articles published in the journal Adult Education could be considered examples of basic research, whereas the realm of applied research includes evaluation studies, policy research, operations research, the research phase of the R&D process, or any inquiry designed to provide answers to specific problems of educational policy or practice.

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* Cronbach and Suppes (5) prefer to discuss conclusion versus decision-oriented inquiries. We think the old applied/basic distinction is more useful for our purposes.

There are, of course, varying approaches to the conduct of basic social science research. Two contrasting traditions that rest on different epistemological foundations (14) might be labelled the deductive-experimental and the inductive-observational. The deductive-experimental tradition borrows its procedures and paradigms from the experimental physical sciences. Theoretical knowledge is advanced by testing hypotheses under rigorously controlled conditions. Because they adhere as closely as possible to the methodological canons of the physical sciences, the deductive experimentalists exemplify scientism as previously defined. The inductive-observational school, in contrast, typically derives theory from the observation of human behavior in naturalistic settings. Theory is formulated by the inductive categorization of data rather than by systematic hypothesis testing. This tradition, too, has its analogues in the natural sciences, but it is experimental science that is dominant today.

The word theory is generally associated with basic research, except when we use it in the loose sense to mean any sort of armchair scheme for understanding or ordering experience. But as social scientists and researchers, when we talk about theory we are generally referring to bodies of systematic knowledge derived from empirical research. Systematic empirical knowledge, of course, is not identical to theory as that term is generally defined (12:9). Indeed as Ebel (9) has noted, in the strict sense of the word there is no theory in education. We are, however, steadily extending our knowledge and understanding of educational phenomena. For example, in adult education there is a growing body of knowledge, beginning with Houle (10) and extending recently to the work of Boshier (1)

and Morstain and Smart (15) concerning motivation for participation in adult education. This body of knowledge consists essentially of research-based generalizations about why adults continue their education. An example of the bare beginning of theory in adult education is the work of Burton Clark (3) on the characteristics of the adult education agency. In his research Clark identified such concepts as "enrollment economy" and "marginality" and demonstrated how they were useful in explaining and predicting behavior in public school adult education agencies. Clark's work exemplifies the inductive-observational or grounded theory approach which the present authors (6) feel has particular promise for the development of substantive theory or analytic schema in specific areas of professional practice.

The Conduct of Basic Educational Research

In general, the basic researcher selects a problem for study because it interests him and because it is significant for advancing knowledge in his field. Usually, there is a corpus of previous work that is directly relevant to the particular problem selected. In best practice, the design of the study and the methods used are determined by the nature of the problem. After collecting and analyzing his data, the basic researcher interprets his results in the light of previous research and theory. The methodology selected by the basic researcher must be explicit, rigorously followed, and logically defensible.

A metaphor of scientific theory presented by Easley sheds light on the place of methodology in basic research. Easley states:

> A. . .metaphor of science might be an urban renewal project. A city can, and must continue to function as a city in order for rebuilding to go on--which means, for example, that not everything can be torn down at once. In science, as in cities, no feature is fixed absolutely for all time; yet, whenever any features are being rebuilt, other parts of science support the operation. (8:53)

Thus, social science theory, even when crudely formulated, has developed a superstructure which enables it to remain intact even though portions are constantly being destroyed and replaced. Extending Easley's metaphor, we can say that part of this superstructure is the system of rules for conducting basic research that is analogous to the political-legal structure of the metaphorical city. The rules of basic research must be followed or chaos results. Just as the need for order and justice in the city requires that rules become standardized, agreement on validity in social science calls for following standardized canons of methodology.

The methodology of the basic researcher, therefore, must be explicit, rigorously followed, and logically consistent because the researcher's contribution must be incorporated into the body of theory and knowledge already accepted by his discipline--a process that amounts to agreement among the researcher's colleagues that his work is sound. Since social phenomena are generally highly complex and transitory, and since many intervening variables often contaminate results, the predictability of social science theory does not approach that of the natural sciences. As a result, social scientists are forced to rely more on the rigor and the logic of methodology in assessing validity--a factor that means that a basic researcher in the social sciences and education generally is, and perhaps must be, a methodological purist, for his ability to employ an acceptable methodology will to a large extent determine whether his contribution to knowledge will be accepted.

The Conduct of Applied Educational Research

Applied researchers, on the other hand, must be methodologically flexible. All research strategies must fit the problem under investigation--that is, the strategy used must yield the most valid and reliable data possible. Since a basic researcher selects his own research problem, he can afford to specialize in a particular methodology, but because the client system typically selects the research problem for the applied researcher, he must be able to employ many methodologies, selecting the correct one or combination for each research problem. Choosing the proper applied research strategy is complicated by the fact that a thorough understanding of the client's problem often does not come for the applied researcher until he is well into the research. Thus, the applied researcher must keep an open mind and be able to shift research tactics in mid-course as clarification of the problem suggests more efficient and effective ways to proceed.*

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* It is by no means essential or desirable for basic researchers to put themselves into methodological or conceptual straightjackets. Indeed, Cronbach and Suppes (5:21) assert that the conclusion oriented (essentially, basic) researcher "is free to reframe his questions as he goes along, taking advantage of each partial insight to redirect his inquiry." And certainly it is true that the applied researcher is not free to radically redefine his problem. It seems to us, though, that Cronbach and Suppes are talking about the ideal, whereas in practice basic researchers, particularly those with an experimental bent, tend to adhere closely to a predetermined design and methodology and not to redirect their inquiries. Thus, too often, elegance of design and method displaces intellectual substance as the hallmark of excellence in educational research.

Another difference of import between applied and basic educational research relates to the reward structure for successful completion of research. For basic research, the researcher's reward comes from the acclaim he receives from his academic peers for advancing knowledge. This academic acclaim is typically brokered into tenure, promotions, higher salaries, and jobs in more prestigious universities. On the other hand, the applied researcher receives his reward from client and self-satisfaction and often from a fee charged for performing the services rendered. Since his research methodology has probably been pragmatic-eclectic and his topic of limited interest to his colleagues, the applied researcher may find himself cut off from academic acclaim. If he does wish to receive academic kudos, he generally must be satisfied with ex post facto reorganization of his research, presenting only those portions which satisfy the canons of basic research. Though often difficult, such reorganization does provide an alternative for the applied researcher desiring academic rewards. Publication, however, can present additional problems, for the client often "owns" an applied researcher's work. If the researcher uncovers facts and problems the client does not wish to be made public, and much competent applied research does, the applied researcher must either forego publication or mask the work in a manner that often can rob it of vitality.

A Chronicle of an Applied Research Study

The points previously made regarding the distinctive requirements of applied research are exemplified in a study recently conducted by the present authors entitled Problems of Dissemination and Use of Innovations in Adult Basic Education (7). Rather than summarize the findings, we will

focus here on how the study was conducted in an effort to illustrate the assertions made earlier concerning the particular problems of applied educational inquiry.

The Innovations Study had a very specific and practical goal: to find out why dissemination and use of 309(b) demonstration project output was less widespread than desired and to recommend ways to remedy the problem. The topic was of considerable interest to our client, the Office of Education, which was responsible for the administration of the 309(b) experimentation program.

Our first step was to gain greater understanding of the client system and the problem. Since we had conducted a good deal of research previously on adult basic education (ABE) and since our projects had been funded under the 309(b) program, we were not totally ignorant of the nature of the problem and the context of the research. Nevertheless, we found it necessary to do some preliminary work, including informal interviews with USOE personnel and analysis of documents and records pertaining to the 309(b) program and individual projects. This initial "immersion" helped to clarify our research objectives and to bring them more into line with the problems perceived by our client. In fact, the research problem as stated above is more explicit and somewhat different in focus than it was in the original grant proposal. Thus it took a good deal of thought, digging, and consultation with USOE to specify the exact nature of the problem and the purpose of the study.

The next step involved developing a conceptual framework for addressing the problem--that is, a general design for the study. Of course, the grant proposal contained such a framework, but it proved inadequate

after the problem had been somewhat redefined. Once again, we had to be flexible and to readjust our thinking. Ultimately, we decided that it was necessary to conceptualize the problem in a systems framework if we were to adequately understand it. Thus the 309(b) program was viewed for research purposes as a three-part social system joined by inter-organizational linkages. The three interdependent subsystems, as we saw them, were USOE's Division of Adult Education Programs, the 309(b) projects themselves, and the major intended users of 309(b) output, the local ABE programs. Casting the problem in this framework had obvious implications for sources of data.

At this point, approximately two months after commencing research, we were still unsure exactly what data were needed and how they would be obtained. We did know, however, that it would be necessary to secure data pertaining to the functions of each of these subsystems, since this was the framework in which we had finally cast the dissemination problem. At this juncture, we once again reviewed the literature on organizational innovation and knowledge dissemination and utilization. Moreover, although we did not originally plan to do this, we undertook an exploratory field study of nine ABE programs to obtain information on networks of professional communication and influence, extent of familiarity with 309(b) projects, attitudes toward innovation, and problems encountered in attempting to innovate. Only after a thorough re-evaluation of previous research and the completion of our exploratory study were we able to determine what data were needed--that is, what questions we had to ask in order to find out why dissemination of 309(b) results was unsatisfactory and what could be done about it. For example, it became evident that we

needed to know such things as how 309(b) policy was formulated by USOE, how 309(b) projects were monitored and evaluated, the extent, nature, and effectiveness of dissemination efforts by various kinds of 309(b) projects, the nature of communication channels utilized by local ABE programs, factors inhibiting utilization of innovations at the local program level, and the organizational correlates of innovativeness in ABE programs.

After weeks of living with ambiguity, we finally gained a fairly clear understanding of where the research was headed, but we had yet to begin systematic data collection. It seemed logical, however, to study each of the three subsystems sequentially, beginning with USOE, then the 309(b) projects, and finally the local ABE programs. This was generally how we proceeded, using a combination of research tactics at each stage of the study, depending upon the type of data needed and the requirements of the research situation as it unfolded.

Initial data collection, consequently, focused on the USOE subsystem and its role in the 309(b) enterprise. We relied heavily at first on open ended interviews with USOE staff and on the collection and analysis of documents and records pertaining to the 309(b) program. Near the end of this phase of the research, we developed a brief questionnaire for USOE staff in order to verify the major conclusions we had arrived at using an inductive, exploratory approach.

The second stage of the study, which centered on the 309(b) projects, also required a flexible, exploratory approach. Although we had some information on projects from USOE documents and records, it was necessary for our purposes to intensively analyze a carefully selected sample

through on-site field visits. It is pertinent to note that after completion of fieldwork in the four projects initially selected for the sample, it became evident that more information was needed on small, non-R&D oriented 309's which we had originally decided to ignore. Consequently, our research strategy was altered and three additional projects with the desired characteristics were added to the original sample.

The final stage of active research involved collecting data from local ABE programs. Due to the cumulative experience we had gained in earlier phases of the study, we were able to specify clearly the information needed from this source. In fact, as the research progressed our general approach became increasingly less exploratory and more and more focused. Since it was important that we obtain data from a large and representative sample of ABE programs, the most efficient, and indeed the only feasible approach, was to use a mailed questionnaire. It also became clear, at this late stage in the research, that we had overlooked an important source of information, namely the state adult education directors. Since their perceptions and opinions on certain questions were important, a second survey instrument was developed.

During a period of eight months, data collection, informal data analysis, and even some writing proceeded simultaneously. But the major job of analysis and writing had to be completed in the three months prior to September, 1973. Our major problem at that time was to organize and write the report so that it would best serve its main function as a guide to policy for the Office of Education. This meant keeping the original problem foremost in mind in analyzing the data and organizing the report. It also meant, of course, that we had to make concrete recommendations that

were supported by the analysis set forth in the final document.

It became clear after the report had been written, that simply mailing copies to USOE would not fulfill our obligations as policy researchers. The written document was lengthy and some parts were unavoidably technical. Government officials, we knew, were not likely to read the report unless we personally interpreted what it contained and what its implications seemed to be for USOE policy. Consequently, the report was delivered personally and its contents and significance briefly explained. Its authors also offered to interpret it further in an informal meeting, after USOE staff had had a chance to read it.

The final step was provision for wider dissemination of the report to other potential users such as state level adult education officials, 309(b) project directors, professors and researchers in adult education, and social scientists interested in organizational innovation and the knowledge dissemination and utilization process. Coleman has pointedly observed that

> if policy research results are transmitted back, without open publication, to an interested party, then those results will ordinarily not be acted upon nor will they openly disclosed to others, unless it benefits his interests. (4:1)

This observation applies equally, of course, to evaluation studies. Most policy and evaluation research contains some material that the researcher's client would prefer not to see published. The researcher, moreover, has an ethical obligation to weigh the consequences of disclosure of potentially damaging or controversial findings. Of course, such problems are mitigated if there is agreement in advance on what rights, if any, the researcher has to publish or otherwise disseminate his findings. There is no universal formula for dealing with these dilemmas, although there is

a prima facie case for some form of public disclosure when research is supported by public funds.

This brief research chronicle may strike some as a scientific horror story: a research problem only vaguely formulated at the start of the study; initial lack of an overall research design; use of a hodgepodge of research methods and data sources; exploratory studies and surveys undertaken in the course of research which had not been originally planned; a sampling scheme altered because of unforeseen discoveries; and data analyzed and presented in highly diverse form including inductive categorization of interview data, descriptive case studies, means and percentage distributions, cross tabulations, and multiple linear regression. Certainly, this is not the way we were taught to do research in graduate school, nor did we do our dissertations in such a fashion. Yet this eclectic and improvisational style is what is often required if applied research is to yield results in the form of practical solutions to concrete problems of educational policy and practice. Others have arrived at somewhat similar conclusions. Coleman, for example, has asserted that "the criteria of parsimony and elegance that apply in discipline research are not important [in policy research]; the correctness of the predictions or results is important, and redundancy is valuable." (4:1) In commenting on the total failure of an evaluation study that utilized a rigorous experimental design, Weiss and Ryan observed:

> We think the failures and frustrations were consequences of the absence of fit between the research design and the actual research problem. . . . [The researchers] adopted a methodology because it was sound, not recognizing that it was inappropriate. (16:135)

It is precisely this "absence of fit" between conventional research strategies and the nature of most applied research problems that has hindered educational researchers in their efforts to contribute effectively to the resolution of concrete problems of policy and practice. Absence of fit, as Weiss and Rein (15) suggest, is likely to be most acute when methodological purists, most notably the proponents of scientism, uncritically transpose the paradigms and techniques of basic research to the investigation of applied problems. This does not mean that applied research should be undisciplined or unscientific. It does mean more emphasis on the flexible, imaginative and eclectic use of the full range of social science tools available to the applied researcher.

The very need for openness and flexibility in applied educational research precludes the development of universal models or principles for the conduct of applied inquiry. However, on the basis of our own experience, and from reflecting on the written accounts of others, we can at least advance a few generalizations that might be helpful in some situations as a guide for planning and conducting applied studies. The major points we would make are these:

(1) The research problem should be identified and defined in close collaboration with the client or intended user of results

(2) Substantial knowledge not only of the problem but of the relevant client or user system is essential prior to conducting research. Consequently, exploratory "immersion" or pilot work is often necessary.

(3) The research strategy should not be rigidly fixed a priori. On the contrary, design and methods should be flexible and adjusted as necessary in the course of the research.

(4) At key points in the research, the investigator should consult with the client or user system for reality testing and feedback.

(5) The research report should be written and organized with the needs of the client or intended users foremost in mind.

(6) Presentation of a written report is not sufficient. The researcher should help the client interpret and make use of the research results.

(7) Any rights the researcher might have to publish or otherwise make use of his findings should be agreed upon in advance with the client.

Implications for Graduate Training

We have argued that applied research holds significant promise for advancing the practice of adult education and that such research requires an operational strategy of its own--a strategy markedly different from conventional basic research procedure. Basic researchers typically decide on a design and methodology and then rigorously follow it from inception to completion, while the applied researcher has to be flexible and eclectic in his research procedures.

The problem is that graduate programs in adult education seldom teach or encourage the use of applied research strategies. By requiring doctoral dissertations that satisfy basic research paradigms, we teach our graduate students to become basic research oriented. We implicitly tell them that their mission is to contribute to knowledge and theory without telling them that they should also be working towards concrete solutions to critical problems of practice and policy.

Perhaps, too, we concentrate excessively on the teaching of methods without giving students critical practice in employing the diverse research strategies needed in applied studies. As Kerlinger caustically notes:

> The methods myth seems to be very prevalent in the research thinking of American educators. The teaching of educational research. . .seems to concentrate largely on 'methods of research'. . . . The methods approach is rather narrowly pragmatic. . . . In order to do the research you need a method. So find a method, the 'right' method. Concomitantly, the way to train students in research is to teach them the 'methods of research.' (13:103)

By emphasizing basic research at the dissertation stage, and by concentrating on the methods of educational research rather than on the strategic application of method, we fail to provide students with the perspective and tools they need to conduct high quality applied studies. Moreover, in many universities, there is a tendency to socialize students into the narrow scientism of the deductive-experimental tradition of basic research. The inductive-observational tradition tends to be downgraded or ignored despite the fact that field methods often prove invaluable in applied studies, especially in the preliminary stage when the researcher is trying to achieve a clear understanding of the phenomena under investigation. Clearly, it will not suffice to teach graduate students a little statistics and the fundamentals of measurement and experimental design if we wish to prepare them to do competent applied research or even competent basic research. What is needed, if we are to upgrade the quality of applied educational research, is a broader vision of the nature of educational inquiry, commitment to improving professional practice, and skill in the use of a variety of research tools, including field and survey methods.

Conclusion

Implicit in this paper is the viewpoint that adult education (and education in general) is an applied professional field more akin to engineering than to physics. But this does not mean that basic research, as we have defined it, is inappropriate or useless. On the contrary, the advancement of knowledge and understanding is a valuable end in itself and essential to the long term development of the profession. It should also be noted that the omission of historical and philosophical inquiry in this discussion is due solely to the fact that these fields are mostly germane to basic research. It does seem to us that if we want better answers to the immediate problems of policy and practice, then we need to put more emphasis on applied studies and to develop more effective strategies for conducting them.

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